UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,980	02/09/2007	Isao Kurihara	Q97121	2887

23373 7590 11/19/2009

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
MCAVOY, ELLEN M	
ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
11/19/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com
PPROCESSING@SUGHRUE.COM
USPTO@SUGHRUE.COM

Office Action Summary	Application No.	Applicant(s)	
	10/598,980	KURIHARA ET AL.	
	Examiner	Art Unit	
	Ellen M. McAvoy	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al (5,965,495) in combination with Katafuchi (6,962,614) and Nakazato et al (6,569,818).

Applicants' arguments filed 27 August 2009 have been fully considered but they are not persuasive. As previously set forth, Goto et al ["Goto"] disclose lubricating oil compositions for internal combustion engines, preferably diesel engines, which have a low ash content and which does not show adverse effects on the performance of apparatuses for exhaust gas treatments such as particulate material traps. The compositions comprise a base oil of lubricating viscosity and, as additives, (a) an ashless dispersant containing boron, (b) a metallic detergent including sulfonates, phenates and salicylates of alkali and alkaline earth metals, and, optionally, (c) esters of aromatic carboxylic acids having a hydroxyl group. The compositions have a ratio [B]/[M] of a content of boron [B] in the composition in % by weight to a total content of metals [M] derived from the detergent in the composition in % by weight of not less than 0.15, and a sulfated ash content in the composition of not more than 1.5% by weight, preferably not more than 1.2% by weight. See column 1, line 45 to column 2, line 12, and column 7. Goto allows for the addition of other lubricant additives to the compositions including zinc dialkyldithiophosphates as anti-wear agents. See column 7, lines 46-67. Thus the examiner is of the position that the lubricating oil compositions set forth in Goto appear to meet the limitations of the claimed compositions.

Applicants' open-ended claim language "comprising" allows for the addition of other additives to the composition such as the esters of aromatic carboxylic acids having a hydroxyl group of Goto. Applicants' invention differs by specifying that the diesel engine is equipped with a regenerative DPF. However, Katafuchi is added to teach that diesel engines having regenerative diesel particulate filter (DPF) are known in the art. Applicants' claimed invention also differs by specifying that the diesel engine is run on a diesel fuel having not more than 10 mass ppm sulfur. However, as evidenced by Nakazato et al ["Nakazato"], it is conventional in the art to use low sulfur diesel fuels (sulfur content of 0.01 weight % or less) in diesel engine-mounted vehicles to which exhaust gas-cleaning devices containing particulate filters are attached.

In response applicants argued that unexpectedly superior effects of the invention cannot be achieved unless (1) the sulfated ash content, (2) the M/P atomic ratio, (3) the B/M atomic ratio, and (4) the S/M atomic ratio fall within particular ranges. Applicants argued that the cited references do not teach the problem solved by the present invention, i.e., even a lubricant composition providing good performance in an engine system running on diesel fuel with 50 to 100 mass ppm sulfur, typical at the time of the priority date of the present application (19 March 2004), cannot be used as it is in an engine system running on diesel fuel with not more than 10 mass ppm sulfur, still less the means for solving such a problem. This is not deemed to be persuasive because Nakazato discloses that it is conventional in the art to use low sulfur containing diesel fuels (sulfur content of 0.01 weight % or less) in diesel engine mounted vehicles to which exhaust gas-cleaning devices containing particulate filters are attached. Nakazato also discloses that sulfur contained in the fuel upon combustion is converted to sulfuric acid and sulfates which emigrate into the exhaust gas and lowers the activity of the oxidizing

catalysts and/or NO_x reducing catalysts in the exhaust-gas cleaning device. Nakazato specifically teaches that the sulfur content of the fuel should be decreased. Nakazato teaches that it is expected that requirements for decreasing the sulfur content of diesel fuel from the present values of 0.05 wt.% (500 ppm) to 0.01 wt.% (100 ppm) or lower, and perhaps even further to 0.001 wt.% (10 ppm) or lower may be required. See column 1, lines 36-46.

The examiner maintains the position that it would have been obvious to one of ordinary skill in the art to have used the diesel engine lubricating oil composition of Goto in combination with a diesel engine having a regenerative diesel particulate filter (DPF) (known in the art as evidenced by Katafuchi) and in combination with a low sulfur containing diesel fuel (as evidenced by Nakazato). The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *KSR Int'l Co. v. Teleflex, Inc.,* 550 U.S. 398, 416 (2007). In resolving obviousness issues, the question is whether the improvement is more than a predictable use of prior art elements according to their established functions. *KSR*, 550 U.S. at 417. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability.

Claim Rejections - 35 USC § 103

Claims 7-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogano et al (6,638,897) in combination with Katafuchi (6,962,614) and Nakazato et al (6,569,818).

Applicants' arguments filed 27 August 2009 have been fully considered but they are not persuasive. As previously set forth, Ogano et al ["Ogano"] disclose low-phosphorus and low-ash lubricating oil compositions for internal combustion engines, in particular diesel engines which

are equipped with a filtration system such as a diesel particulate filter (DPF). See column 1, line 8 to column 2, line 49. The compositions comprise a base oil composed of a mineral oil, a synthetic oil or mixtures thereof; and, as additives, (a) an overbased calcium salicylate, and (b) ashless dispersant such as a boron-containing succinimide. Ogano teaches that component A is incorporated at 0.10 to 0.90 weight % as calcium, based on the whole composition, preferably 0.5 to 0.9 weight %. Ogano teaches that the lubricating oil compositions contain boron at 0.04 weight % or less , based on the whole composition. See column 4, line 33 to column 5, line 44. Ogano allows for the addition of other lubricant additives to the compositions including zinc dialkyldithiophosphates as anti-wear agents. See column 6, lines 45 to column 7, line 35. Thus the examiner is of the position that the lubricating oil compositions set forth in Ogano appears to meet the limitations of the claimed compositions. Applicants' open-ended claim language "comprising" allows for the addition of other additives to the composition such as the other additives disclosed in Ogano. Applicants' invention differs by specifying that the diesel engine is equipped with a regenerative DPF. However, Katafuchi is added to teach that diesel engines having regenerative diesel particulate filter (DPF) are known in the art. Applicants' claimed invention also differs by specifying that the diesel engine is run on a diesel fuel having not more than 10 mass ppm sulfur. However, as evidenced by Nakazato et al ["Nakazato"], it is conventional in the art to use low sulfur diesel fuels (sulfur content of 0.01 weight % or less) in diesel engine-mounted vehicles to which exhaust gas-cleaning devices containing particulate filters are attached.

In response applicants argued that unexpectedly superior effects of the invention cannot be achieved unless (1) the sulfated ash content, (2) the M/P atomic ratio, (3) the B/M atomic

ratio, and (4) the S/M atomic ratio fall within particular ranges. Applicants argued that the cited references do not teach the problem solved by the present invention, i.e., even a lubricant composition providing good performance in an engine system running on diesel fuel with 50 to 100 mass ppm sulfur, typical at the time of the priority date of the present application (19 March 2004), cannot be used as it is in an engine system running on diesel fuel with not more than 10 mass ppm sulfur, still less the means for solving such a problem. This is not deemed to be persuasive because Nakazato discloses that it is conventional in the art to use low sulfur containing diesel fuels (sulfur content of 0.01 weight % or less) in diesel engine mounted vehicles to which exhaust gas-cleaning devices containing particulate filters are attached. Nakazato also discloses that sulfur contained in the fuel upon combustion is converted to sulfuric acid and sulfates which emigrate into the exhaust gas and lowers the activity of the oxidizing catalysts and/or NO_x reducing catalysts in the exhaust-gas cleaning device. Nakazato specifically teaches that the sulfur content of the fuel should be decreased. Nakazato teaches that it is expected that requirements for decreasing the sulfur content of diesel fuel from the present values of 0.05 wt.% (500 ppm) to 0.01 wt.% (100 ppm) or lower, and perhaps even further to 0.001 wt.% (10 ppm) or lower may be required. See column 1, lines 36-46.

The examiner maintains the position that it would have been obvious to one of ordinary skill in the art to have used the diesel engine lubricating oil composition of Ogano in combination with a diesel engine having a regenerative diesel particulate filter (DPF) (known in the art as evidenced by Katafuchi) and in combination with a low sulfur containing diesel fuel (as evidenced by Nakazato). The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *KSR Int'l Co. v.*

Teleflex, Inc., 550 U.S. 398, 416 (2007). In resolving obviousness issues, the question is whether the improvement is more than a predictable use of prior art elements according to their established functions. *KSR*, 550 U.S. at 417. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability.

THIS ACTION IS MADE FINAL. Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen M. McAvoy whose telephone number is (571) 272-1451. The examiner can normally be reached on M-F (7:30-5:00) with alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ellen M McAvoy/
Primary Examiner
Art Unit 1797

EMcAvoy
November 12, 2009